Assignment 2 Report

1029

A while loop is used to read all the characters in the string until you reach the end of the file. Getchar is used to write i. The first IF statement is used to check whether I's ASCII value is between that of A and W or a and w. If it is then I's new ASCII value is increased by whatever ROTATE is defined as, in this case 3. If the value of I is between X and Z or x and z, then the value of I is decreased by the length of the alphabet minus ROTATE to go back to the start of the alphabet. If the value of I is not a letter but instead any other character eg: !, ?, {,], then they remain the same. The new string is then printed using putchar which prints all of the values of I at once.

1032

A string is read in until a new line character is read, where the next string is then read. Method strlen then finds the length of each string by reading a character until it reaches a new line character or end of file. The first and second string are then compared by looping through each character and counting j, of the first string and comparing it to the equivalent second string letter. If there is a substring, then counter is increased and the j counter reset to 0. If no substring is found, then j counter is set to 0 again. This process is then repeated for the third string comparing to the first one. The words are then outputted.

1041

The algorithm takes the three values n, m and p. These are then used to create the three different matrices. The final product matrix is created by looping through all three values in nested for loops, to pass through each value in each of the original matrices, and multiplying them together and assigning the product to final matrix. The final matrix is then printed out by looping through nested FOR loops and printing its grid by comparing its position to IF statements and using the correct format for its position. http://www.mathsisfun.com/algebra/matrix-multiplying.html was used to find out the method of a matrix dot product.

1043

This algorithm reads in the first number and reads in that number of strings, it then sorts these strings through nested FOR loops and IF statements to create a bubble sort in descending order. The second number is then read in, and that number of strings is read in. The same method used to sort the first set of strings, is then used here to sort this set. A 2D array is then created to merge the two sorted arrays by using a merge sort. It compares the first item of both arrays and takes the larger of the two and stores it in the 2D array. The counter of the array that had its item chosen is then increased and the comparison made again. This is repeated by nesting an IF statement in the FOR loop and repeating until all comparisons are made. The 2D array is then printed.

http://stackoverflow.com/questions/8164000/how-to-dynamically-allocate-memory-space-for-a-string-and-get-that-string-from-u was used to dynamically allocate memory for the strings.

1044

X is scanned in from the user and used to determine the length of the array power. A memory allocation is then used to allocate the length of the space required to store the answer of 2^x, I used
http://stackoverflow.com/questions/3082914/c-compile-error-variable-sized-object-may-not-be-

initialized to help me with this. A nested WHILE loop is in a FOR loop, which is used to count through all the digits of 2^x. Within the WHILE loop is an IF statement which determines whether the carry from the previous run through is 0 or not. If it isn't then the current value at power[j] is doubled and the value of the carry added. The modulus is then taken of power[j] and is also divided by 10 to remove the digit just added. The modulus is then assigned as the new value of power[j] and the carry is assigned as power[j]/10. If the carry does equal 0, then power[j] is doubled, if this is greater than 9 then you carry out the modulus and division of power[j]. The values of power[j] are then all added together and printed.

http://stackoverflow.com/questions/11102424/project-euler-no-16 was used to help me understand how to assign digits of an integer to an array.